is already visible.[37] Accordingly, in their second paper Palade and Claude (1949b) explored the effects of the more common fixation and staining procedures employed for the Golgi apparatus. They also applied the usual Golgi techniques to lipid droplets of known chemical composition and on fractions isolated by cell fractionation. In all cases they found evidence that lipid droplets with high phospholipid content developed into myelin figures. In the homogenate preparations, the myelin figures exhibited "the same polymorphism, growth particularities, and typical intracellular distribution as the figures produced by ethanol and described in the previous paper" (p. 81). Among the morphological features exhibited was the division into two regions that a number of investigators had observed. In addition, Palade and Claude proposed to account for the success of Beams and King (1934) in segregating the Golgi apparatus through centrifugation: "The high-speed centrifuging experiments prove only that the lipid droplets can be displaced within the cell and that their specific gravity is less than that of the cytoplasm" (p. 92). Further, they attributed the evidence suggesting a role in cell secretion to the fact that "The haphazard growth of a myelin figure may occasionally bring it in contact with a bile capillary, secretion granules, or neutral fat drops. Likewise, developing myelin figures often penetrate between zymogen granules or mucus droplets which, subsequently, will seem embedded in the meshes of a Golgi apparatus" (pp. 92–3).

Palade and Claude also observed the formation process over time, and concluded that the wave of acidity moving through the preparation corresponded to the formation of the myelin figures. They also proposed a mechanism by which the acid could create the myelin figures through hydrolysis of the phospholipid molecules into more soluble substances that could then be rearranged into myelin figures. Once the acid had acted, Palade and Claude hypothesized, various electrolytes in the fixation media facilitated growth and stabilization of the myelin figures. Finally, further increase in electrolytes stopped the formation of new myelin figures and the slow-diffusing osmium tetroxide then fixed the figures.

Altogether, Palade and Claude provided as compelling a case for a structure being an artifact as one could desire. Not only were they able to generate images that resembled the Golgi apparatus and trace their development from phospholipid inclusions, they also offered a theoretical account

[37] Palade and Claude noted, though, "it may be recalled that Golgi himself, in a modification of his original procedure, proposed the use of an ethanol mixture (32% final ethanol concentration) as a fixative, and recommended it specifically for its better, quicker, and more constant results in the demonstration of the apparatus" (1949b, p. 72).